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OPERATIONAL FUNCTIONS IN THE LITTORAL: COMMAND & CONTROL MOVEMENT & MANEUVER PROTECTION

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Joint Military Operations Department.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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ABSTRACT

On 8 December 1941 the Japanese initiated operations against the British Crown Colony of Malaya, as a necessary precursor to conquest of the Netherlands East Indies. The British defenders had the advantage of numerically nearly equal land forces, and 1100 kilometers of rugged terrain where they had operated for years. The Japanese had clear superiority in naval and air forces, and ground forces hardened by years of combat in China. This operation had all the trappings of an epic littoral struggle, perhaps on the scale of those ongoing in North Africa.

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The fall of Malaya and Singapore was perhaps inevitable, but the speed with which they collapsed was not. British failures in the operational functions of command and control, movement and maneuver, and protection, explain the rapidity with which this operation was completed.

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Introduction

From 8 December 1941 until 15 February 1942 the Japanese 25th Army conducted operations which concluded in the capture of Malaya and Singapore. Although the British understood defense of this peninsula would be difficult, they were surprised by the tempo of operations, and the ultimate loss of the territory. An examination of the operational functions of Command and Control, Movement and Maneuver, and Protection provide insight into the British defeat.

Operational Overview

In the early hours of 8 December, 25th Army forces landed at Singora and Patani in Thailand, in violation of Thai neutrality, and at Kota Bharu, in the British colony of Malaya[1]. The assault was supported by Navy surface and subsurface forces,[2] and by land based air operating from distant bases in Vietnam[3]. The Japanese established local air superiority, which they maintained until the fall of Singapore[4]. They captured primitive Thai airfields[5] to provide forward bases for aircraft, and rapidly moved south into the interior of Malaya. Within days the 25th Army captured intact modern British airfields at Kota Bharu and Alor Star, enhancing support for land based air,[6] and establishing a pattern wherein captured Commonwealth facilities and material would be of great value to the attacker[7]. On 10 December Indochina based aircraft sank the Royal Navy capital ships REPULSE and PRINCE OF WALES[8].

Commonwealth defenses were overwhelmed by Japanese momentum[9]. Critical positions were easily breached[10] and tactical defeat followed tactical defeat[11]. By 31 January the 25th

Army was in possession of the entire Malay Peninsula, and positioned for an assault on Singapore. On 8 February they crossed the Johore Straits and landed in Singapore. By the 15th Commonwealth forces were surrounded within the urban perimeter, and forced to surrender.

The Strategic Setting

This was a war fought over oil[12]. The Americans restricted Japanese access to oil in an attempt to influence their policies in China[13]. The Japanese response was a plan to create their own oil supply by taking control of the Netherlands East Indies (NEI). The sealane to the NEI passed between the Americans in the Philippines, and the British in Malaya; both would resist this aggression[14]. The Japanese believed the key to securing a position in the NEI was to seize Malaya and the Philippines, and then a network of positions from the Central Pacific Islands to Burma[15].

The prize in Malaya was the island of Singapore. However, it was heavily defended on its sea border. The British and Japanese understood that to take Singapore meant to first take the Malay Peninsula, and both sides had a general understanding of each others' requirements in the defense/assault of the peninsula[16]. This land was predominated by jungle, interrupted by rubber plantations, roads, and railroads[17]. Maneuver ashore was dictated by the roads. The major road network was on the west side, but the Japanese would need to attack from the east coast, to avoid forcing passage by Singapore. An east coast assault meant landing where the feeder roads connected to the major (trunk) roads on the west side[18]. Landings at Kuantan or further south would put the Japanese too far from their own land based air, and too close to the power base of Singapore. The options narrowed to Singora and Patani, on

the Kra Isthmus in Thailand, and to the south, at Kota Bharu in Malaya[19]; the Japanese planned their attack, and the British their defense, with these courses of action in mind.

The ultimate plan for the defense of Singapore was built around a powerful fleet[20]. In December 1941 the fleet base existed, but not the fleet. The secondary component was air power[21]. At that time the airfields were in place, but only one quarter of the planned 600 aircraft were available[22]. Land forces were the tertiary element of planned defense, but at the time of the attack they were the predominant force[23]. And while they were robust on paper, they were too weak to defend a large littoral against a well balanced naval/air/land expeditionary force, especially considering the British lack of quantity, quality, and balance in air and naval assets. In perhaps the greatest irony, the ground force scheme of defense was complicated by the need to defend first rate Malaya airfields against Japanese occupation; airfields that were built to hold the non existent air force.[24]

Command and Control

Operational Command and Control (C2) is the means by which the joint/combined force synchronizes activities in time, space, and purpose in order to achieve unity of effort with respect to strategic objectives[25]. C2 failures were significant causes of the defeat in Malaya and Singapore. Specific failures included an inability to integrate Commonwealth and friendly forces into an overarching allied C2 organization, an inadequate organization for response to the Japanese invasion, poor coordination between components, and inadequate operational level control over tactical units.

Malaya and Singapore existed in the greater landscape of the whole of allied Southeast Asia. The Americans, British, and Dutch had common interests, and sizable local and distant forces[26]. These were insufficient to defend all the territory, but perhaps enough to stop the Japanese before the NEI, or at least delay their advance. The allies were aware that hostilities were likely, yet they failed to adequately organize a theater of war[27], and within that theater provide for the command and control of forces to ensure unity of effort[28]. These failures likely predetermined the losses of the Philippines, the NEI, and Malaya/Singapore.

Failure to create, prior to hostilities, an allied theater of war[29], a focused strategy, and an effective C2 structure resulted in individual allied efforts, within a common theater, allowing the Japanese to attack multiple isolated targets. A common strategy was needed to block Japanese access to the NEI[30]. Focusing limited assets on one blocking position - either Malaya/Singapore or the Philippines - would have supported this objective. Holding the Philippines meant maintaining a long SLOC through an extensive network of enemy island bases. However, support of Malaya was possible from India, across a less hostile and shorter SLOC. Making a stand in Malaya, particularly with a concentration of the Asiatic Fleet[31], and major units of the Pacific Fleet[32], was a better option than attempting to hold the Philippines[33].

An "American-British-Dutch-Australian" (ABDA) command stood up 15 January, with British General Wavell as commander[34]. Wavell's combined command conducted the subsequent allied theater defense, including Malaya/Singapore. However, non Commonwealth contributions in Malaya were limited to small Dutch naval and air units, and Churc-

hill continued to exercise national control over events[35]. ABDA, created late as it was, had no impact on the outcome of the Malaya operation[36].

8 December dawned without formal allied unity of effort. There were nonetheless theater initiatives which could offset poor planning at the multinational level. Understanding the need to share forces, Admirals Hart (Asiatic Fleet) and Phillips (British Eastern Fleet) met as soon as Phillips arrived in theater, and agreed on basic levels of support[37]. The Asiatic Fleet, with its large submarine force[38], had the potential to provide warning and interdiction of Japanese movements[39], but all Phillips asked for was a squadron of destroyers to support his capital ships. Had an ABDA like naval force been an immediate result of the Hart/Phillips conference the Japanese would have had a greater challenge in gaining control of the sea[40].

Poor C2 also characterized events within the Malaya Theater of Operations, eliminating any chance of excellence at the operational level overcoming errors at the operational-strategic level. Both sides understood that an operation targeted against Singapore would have to start at the Singora and Patani road terminus. The Japanese would need to establish and rapidly break out of these beachheads[41]. This created a quandary for the British[42]. Their best course of action was to immediately collapse the beachhead, stopping the Japanese in Thai territory[43]. But to do this meant taking up positions in Thailand prior to the Japanese assault; this planned event was called "Matador"[44]. A timely decision[45] would be needed from London, to violate Thai sovereignty prior to the Japanese doing that same thing. There was a second option, to assume strong defensive positions on the two frontier roads near the Thai/Malaya border, at Jitra (in Malaya) and "The Ledge" (in Thailand), but again,

an early commitment would be needed[46]. The 11th Indian Division would be used for either plan, and they would need sufficient time to establish the positions outside of Singora/Patani, or at the frontier. The essence of Matador was to immediately put the Japanese on the defensive; that of the alternate plan was to mount a determined Commonwealth defense at the border[47]. The fundamental difference between the two plans cannot be overstated[48].

Due to companion failures of C2 at the national and theater levels, the choice between the two was never made. While British forces in theater were aware of the need for a timely decision, the criticality had not registered with national authorities. Churchill was convinced the fight would be decided at the gates of the fortress of Singapore[49]. He expected a protracted delaying action down the peninsula[50], and didn't understand the importance of throwing the Japanese back into the sea, or at least stopping them at the Thai border.[51]

The British joint force commander, Air Chief Marshall Brooke-Popham, better understood the need to decide on "Matador". As early as 21 November he was badgering London for specific criteria which would allow him to execute "Matador". The government, however, was concerned about upsetting Roosevelt by violating Thai sovereignty[52], and was vague in response. The issue was further clouded by conjecture that Japanese sympathizers within the Thai government would attempt to lure the British in, and then ask the Japanese to come to their rescue; Brooke-Popham did not want to be deceived into starting a war with Japan[53]. He could however, with less risk, execute the alternate plan. It was not as good as "Matador", but was better than inaction. The danger was that committing to defensive positions in the frontier would slow transition to "Matador", were that to be subsequently directed.

On 6 December Brooke-Popham learned that Japanese transports were enroute the Gulf of Siam[54]. Were they bound for Bangkok, and not a direct threat, or were they the Malaya assault force? He neither pressed London, nor took action to initiate "Matador"[55]. However, his ground force commander, General Percival, guessed that Matador would be ordered, and advised the on scene commander to be prepared to execute[56]. But the Japanese attacked before the British could come to a decision[57]. "Matador" vaporized, and the new urgency was the race to establish strong defensive positions at the two frontier choke points. But the British were too late[58]. The Japanese breached the inadequate defenses at both points, and connected with the trunk roads heading south.

Brooke-Popham was to preside over another C2 catastrophe. Phillips decided to use his poorly balanced fleet[59] (two capital ships and three destroyers) in a surface action against the Japanese invasion force. Prior to departing Singapore Phillips discussed this operation with Vice Air Marshall Pulford, the air component commander. Pulford told Phillips that fighter protection in the landing area was doubtful because of distance and lack of assets. By the time Phillips left port the situation in the north had worsened, and "doubtful" became "impossible"[60]. There is no indication that Brooke-Popham participated in the flawed decision making process between the components. The subsequent loss of REPULSE and PRINCE OF WALES to air attack ruled out assembling a potent allied naval force from the Eastern Fleet, the Asiatic Fleet[61], and the Dutch force. The allies ultimately surrendered the east and west Malaya littorals to the Japanese.

A final failure of Commonwealth C2 occurred in the end days of the defense of Singapore. While momentum throughout the length of Malaya belonged to the Japanese, the British had a chance to make a determined, if ultimately unsuccessful, defense of Singapore. The front along the Johore Straits was too long for the British to adequately defend, but once the Japanese had committed to a crossing point, the defenders had a chance to use their interior lines to counterattack. Such was the case when the Japanese landed on the northwest corner, and were subsequently held along a choke line, the "Jurong Line". This line, and an adjacent one, tragically collapsed when one defending brigade prematurely initiated the unexecuted last ditch contingency plan; a battalion made an unauthorized and uncoordinated tactical re-deployment; and a second battalion realigned itself to defend its rear against the problems caused by the movements of the first battalion[62]. The British finally had the Japanese in open force on force engagements, then saw the opportunity slip away through an inability of the operational commander to control and coordinate his units.

Movement

Operational Movement is the function of the deployment of forces[63]. The British made two key force deployment decisions, the movement of REPULSE and PRINCE OF WALES to the Eastern Fleet, and the movement of the 18th Division from the Middle East to Singapore.

REPULSE and PRINCE OF WALES deployed to Singapore in early December 1941. The foundation of the defense of Singapore was acknowledged to be a strong fleet. Competing requirements prevented this[64], but the security of Australia and New Zealand, which was

believed to rest on Singapore, kept the creation of a strong fleet a priority issue[65]. The Admiralty decided a fleet would deploy to Singapore when it had reached a strength of seven[66] capital ships and one aircraft carrier. It was hoped this would happen by the spring of 1942[67]. Naval leaders believed early deployment of an understrength fleet would be unsound, as it could not gain sea control in the South China Sea[68]. Politicians, however, saw events unfolding at a pace which could lead to war prior to the fleet reaching its desired size. REPULSE and PRINCE OF WALES were moved to Singapore in the hope that their presence would be a deterrent[69]. Even in hindsight its hard to criticize this action. These ships were not lost from decisions in London, but rather those made aboard PRINCE OF WALES.

The second issue concerned the movement of the 18th British Division from the Middle East to Singapore[70]. Until mid-January Percival had the same ground forces with which he'd started the defense of the peninsula. At that time the 45th Indian Brigade, and the lead brigade of the British 18th Division arrived in Singapore. The remainder of the 18th was due by the end of the month. Until this time Churchill had seen the movement of the 18th to be integral to the defense of Singapore, the key tenets of which were delaying the Japanese on the Peninsula, slowing them down in Johore State (the southern portion of the peninsula), and stopping them cold at the impenetrable island fortress. On 19 January he was advised by Wavell that in fact there were no fortifications on the north side of the island[71]. This news, in conjunction with a flood of tactical setbacks, caused Churchill to have his staff review the possibility of ceasing reinforcement of Singapore, and redirecting enroute troops to Burma, a place more likely to be held. However, consideration of this question was leaked to Aus-

tralian Prime Minister Curtin, who told Churchill that throttling back on support for Singapore would be regarded as "inexcusable betrayal"[72]. Curtin's pressure[73], along with the determined American/Filipino defense of Bataan, forced the decision to deploy the remainder of the 18th to Singapore vice Rangoon. Churchill's parting shot on this issue was "there is no doubt what a purely military decision should have been"[74].

...And Maneuver

Operational Maneuver is the deployment of forces to and from battle formations, the regrouping of forces, or the extension of those forces to operational depths, in order to achieve positional advantage over the enemy[75]. Maneuver was an across the board failure for the British. Lack of an effective and well articulated concept for defense, aggravated by early loss of sea and air control, paralyzed ground operations.

The British early on lost the initiative in the air, preventing a concentration of air power which could be used to support operational maneuver[76]. The Japanese used superior numbers, generally better aircraft, and early seizure of expeditionary airfields to overcome the lack of naval air, and the initial need for their aircraft to operate at extreme ranges from bases in Vietnam. As they moved south they captured additional British airfields, permitting the aircraft to stay close to the forward line of troops. Offensive counter air efforts increased in intensity as they moved south, eventual forcing most British fighters to operate from Singapore[77], and ultimately Sumatra[78]. The British received one significant reinforcement with the mid January arrival forty eight front line Hurricane fighters[79], but these quickly attrited in the face of overwhelming Japanese superiority.

At sea the allied navies were combined too late to be of assistance in the defense of Malaya, and the only two capital ships were needlessly sacrificed. American and Dutch forces were withdrawn to the NEI[80], and Royal Navy units were fully involved in protecting seaborne reinforcement of Singapore. As a result the British lost the littoral maneuver advantage critical to peninsula operations[81]. This was particularly true along the west coast where the Japanese frequently used maneuver of land forces by sea to outflank defenders[82].

Commonwealth defense efforts were further complicated by good planning and effective execution by the Japanese. They initiated the operation capitalizing on the classic advantages of maneuver from the sea in a large littoral[83]. Ambiguities as to time and location, and even the assault itself, prevented the British from providing anything more than determined but outnumbered resistance at Kota Bharu. The Japanese willingly forfeited their traditional use of flanking maneuvers ashore to the realities of operating in Malaya: armor[84] and infantry were concentrated for penetration of road defenses where Commonwealth forces had spread out their fronts. Nearly all Japanese infantry pedaled their way to Singapore[85], limiting targets for British aircraft, keeping roads clear for tanks, and easing requirements for trucks and petroleum. The 25th Army used organic and captured small boats for seaborne flanking maneuvers on the west coast. And momentum became a key ingredient in maneuver[86]. The tempo of Japanese operations was such that the allies were never able to regroup from a tactical loss, to adequately prepare a new defensive position[87]. This was true from the landings at Singora and Patani to Jitra and "The Ledge"; from Jitra to Gurun; from Gurun to the Perak River; from the Perak to the Slim River; and so on to the Johore Straits[88].

The British failed to develop an effective and well articulated concept for the defense of Malaya and Singapore[89], and this had a profound effect on their operational maneuver. Churchill was satisfied with delaying operations down the peninsula pending the arrival of reinforcements, until he understood Singapore's feet of clay. Brooke-Popham was consumed with the necessity to stop the Japanese on the beach, or at least at the frontier. In this approach however he did not have full support from LTG Heath, commander of the III Indian Corps, charged with defense of the north part of the peninsula. Heath envisioned rapid withdrawal to the most defensible positions, allowing for minimal attrition, to husband assets for the final stand further south. Heath's boss, Percival, remained influenced by Churchill's interest in buying time, and delayed decisions on withdrawals, resulting in hasty defensive positions and high attrition[90]; he was particularly focused on keeping the Japanese as far north as possible, to delay their seizing airfields which could interfere with SLOCs from the west[91]. Wavell, the theater commander, believed that despite the loss of sea and air control, after the fall of Johore Singapore could still hold out for months[92]. The only tiger in the group, MG Bennett[93], commander of the 8th Australian Division, pushed for aggressive counter attacks to break Japanese momentum. He was never provided a chance to employ his division in this role[94], and when given other commonwealth forces his bluster proved greater than his ability[95].

Muddle at the command level resulted in uninspired operational maneuver on the ground. Maneuver consisted of hasty defenses which failed to use the advantages terrain offered to a defender. The Japanese bought cheap victories, and consequently maintained a high tem-

po[96]. Because the Japanese were not slowed, opportunities for counterattack were never created. As the Japanese stretched their LOCs ashore they became vulnerable to flanking maneuvers from the west littoral, but those that were attempted were few and insignificant[97].

The most critical operational maneuver decision made by the British was to commit the bulk of their land combat power to delaying actions on the peninsula, instead of saving them for the defense of Singapore[98]. When the Japanese assaulted Singapore, among the front line defenders only a small portion of the forces, some units of the British 18th Division, were "fresh" troops, not worn down by fighting on the peninsula[99]. It is doubtful however that an alternate strategy of conserving forces for the defense of Singapore would have changed the outcome. The Japanese may have gotten to the Johore Straits sooner, possibly leading to an even earlier loss of the island.

The ability of the Japanese to concentrate overwhelming land and air forces, from bases in Indochina, and to control this SLOC and the littorals, probably predetermined the outcome of land operations in Malaya. Coherent British land operations may have only delayed the inevitable. However, if the Malaya operation had been lengthened to match that of the defense of the Philippines, the sequencing of subsequent operations in the NEI, Port Moresby, and the Aleutians and Midway may have been upset. A great "what if".

Protection

Operational Protection allows for the preservation of friendly force combat effectiveness, so it can be employed at the decisive time and place[100]. The defense of Malaya and Singa-

pore is highlighted by lapses of operational level force protection in the air, on the sea, and on land.

Failure to ensure sea control in the vicinity of the east and west littorals was not an oversight, but rather a consequence forced by the realities of competing theaters of war. This does not however lessen the negative impact on the conduct of land operations[101]. Brooke-Popham fretted over "go-no go" on "Matador", but in reality the Royal Navy should have been the first line of defense. The Japanese assault forces should have been challenged and attrited in the Gulf of Siam. Further, Heath's and Bennett's forces would not have endured a high level of rear area harassment from Japanese amphibious raids, had the Royal Navy protected the west littoral[102].

Likewise the Royal Air Force failed to protect friendly forces; other theaters of war had priority on aircraft[103]. On 8 December the RAF was at a disadvantage regarding quality and numbers of aircraft[104], and the situation steadily deteriorated until 15 February. They were unable to conduct proper surveillance and defense of the Gulf of Siam prior to hostilities. After fighting started they were incapable of protecting ground forces from attacks by enemy aircraft[105], and protecting the Singapore fortress itself. Even considering the lack of coordination between Phillips and Pulford, it would have been impossible for the RAF to provide the necessary fighter protection to defend against the numbers of enemy aircraft which participated in the 10 December action against the Eastern Fleet. In the end local air superiority was lost over Singapore, to the point where Japanese artillery shelling the island was unchallenged by British aircraft.

What is perhaps inexcusable was the failure to provide protection for the northern perimeter of Singapore, along the Johore Straits[106]. Hardened and layered defenses would likely have made the crossing of the straits impossible for the force that the Japanese had in place. At a minimum the crossing would have been significantly delayed, interrupting Japanese momentum and providing time to restore the defending forces, which for the most part were worn out from the peninsula defense.

Conclusions

The allies had little chance of stopping the Japanese on the Malay Peninsula and keeping them out of Singapore and the NEI. However, the Japanese advance could have been made longer and more costly. This would have relieved pressure on other areas in the Pacific theater, and eased subsequent efforts to defeat the Japanese.

Failures of Force Protection go back to decisions made in the previous decade, and by 1941 were hard to mitigate. The Pacific theater could not compete with the European theater for resources [107]. Likewise, Operational Movement was tied to available forces. Some allied land, naval and air assets were provided for the defense of Malaya, after the invasion, but those immediately available were limited; and those available over the long term would show up too late. The only major effort possible was a force built around the three Pacific Fleet carriers, perhaps one or more Royal Navy carriers, and supporting surface ships. This fleet would have been outnumbered by the Japanese carrier force, as well as robust land based aviation. Probability of failure would have been great.

Better theater Operational C2 could have forced more delays and casualties on the Japanese. Serious efforts were made, but in the end they were not good enough. The Americans couldn't accept the Pacific and Asiatic Fleets defending the Malay barrier instead of the Philippines and the central Pacific. Churchill, for whatever reason, didn't force this issue with Roosevelt. An allied command structure, which included potent American/British naval assets in Singapore, and a strong RAF/AAF in Malaya, might have been a deterrent to the entire Japanese southern campaign.

Flawed Operational Maneuver in defense of Malaya and Singapore was an inexcusable failure. There was no coherent strategy. Despite years to prepare, the only concept was "Matador", a plan which in the end proved too cumbersome to execute. The Commonwealth land forces, defending 1100 KM of jungle, even with the loss of air and sea control, could have made the victory a long and expensive one for the Japanese 25th Army. In these early weeks Japanese LOCs in Malaya were over extended, as the bulk of the troops were employed in the front lines against the British. They were prime targets for organized rear area actions, or perhaps an Inchon type assault well behind the lines. But the British chose to base their defense on confronting the Japanese on the road system, where Japanese superiority in air and armor always prevailed[108].

[1]Basil Collier, The War in the Far East 1941-1945 (New York: William Morrow & Company 1969), 138-139. See appendix A for detailed discussion of the entire land operation.
[2]Shiro Yamaguchi, IJN, Malaya Invasion Naval Operations, Japanese Monograph No. 107 (Tokyo: Headquarters USAFFE and EIGHTH U.S. Rear 1958), pp 12-14 show task organization and principal missions.
[3]Masanobu Tsuji, IJA, Singapore The Japanese Version (New York: St Martin's Press 1961), 28, 30, 43, 59, 62, 76, 77. Collier, 139. Saburo Hayashi, Kogun The Japanese Army in the Pacific War (Quantico: The Marine Corps Association 1959), 32, 36. Discuss the participation of Indochina shore based aviation in the initial assault. Tsuji and Collier provide far more detail than Hayashi. A. E. Percival, The War in Malaya (London: Eyre & Spottiswoode 1949), 65, called the Japanese move into Vietnam "one of the most momentous moves in the whole of the Far East drama".
[4]Collier, 145. Percival, 114.
[5]Tsuji, 87, 130. Collier, 138, 171. Discuss the concept and execution of using captured British air bases to keep Japanese aircraft operating forward.
[6]Tsuji, 48, 62, 96, 146, 179. Collier, 145. Ministry of Defense (Navy), War With Japan, Vol I & II (London: HMSO, 1995), Vol II 55. Discuss how these airfields and others were successfully used to integrate with land campaign.
[7]Tsuji, 96, 124, 128, 134, 175, 188, 197. Collier, 145, 182. Provide many examples of the importance of captured facilities, supplies, etc. to the Japanese effort. Percival, 118, 131.
[8]Collier, 146-147.
[9]Tsuji, 222. Discusses deliberate Japanese plan to keep up momentum and keep British off balance.
[10]Collier, 160-165. Discusses the loss of the critical defensive position at Jitra.
[11]Sir Winston Churchill, The Hinge of Fate (Cambridge: The Riverside Press 1950), 38-39. Collier, 165-166, 174. Provide examples of Commonwealth forces never having the time or resources to establish adequate defensive positions.
[12]Tsuji, 19. Collier, 94, 95. John Toland, But Not in Shame (New York: Random House, 1961), 86. MOD(N) Vol I, 18, 25, 29, 65-68, 84. Talk to the relation between oil, and related resources, and the Japanese efforts in southeast Asia.
[13]MOD(N) Vol I, 55.
[14]Ibid, 18. Collier, 95.
[15]Collier, 95. Hayashi, 31. Discuss how the whole package of conquests and existing bases would provide a strategic defense for Japan. MOD(N) Vol I, 84.
[16]Percival, 17, 44, 45
[17]Ibid, 38-39. Good overview of geography of Malaya and Singapore.
[18]Collier, 199. Discusses how use of trunk roads was key to Japanese success.
[19]Ibid, 111.
[20]Collier, 107. MOD(N) Vol I, 27 explains hierarchal relationship of naval, air and ground forces in planning for defense of Singapore; 51 discusses using, in the absense of the fleet,

airpower to replace the mobile aspects, and ground power in to substitute for static defense. See also 98. Percival, 15, 23, 43, 102.
[21]Collier, 108-109. "Required" vs actual air OOB, and how it fit into the defense plan. Percival, 30, 46, 102.
[22]Collier, 101, 108. Percival, 104. Churchill, 872-873. MOD(N) Vol I, 32-33, 47. Deficiencies in air OOB. Churchill reference is GEN Pownall's memo on Singapore defense shortcomings.
[23]Collier, 109. Churchill, 871-874. 871-874 is full text of Pownall memo, and provides overview of existing situation with regards to naval, air, and land forces. MOD(N) Vol II 44-45 provides assessment of British naval, air and land power at start of conflict.
[24]Collier, 109. Percival, 42, 101.
[25]JMO Department, Operational Functions (NWC 4103) (Newport: Naval War College 1996), 2.
[26]Collier, 103. Percival, 51.
[27]MOD(N) Vol I, 48. Attempt is made at defining an "Eastern Theater".
[28]Collier, 98. MOD (N) Vol I, 14, 17, 19, 29, 34-35, 37-39, 42, 43, 47, 50. The British and Dutch pushed military cooperation at both the national and regional level, over a period of several years. Americans resisted the complications of government to government agreements. The history of allied cooperation in SE Asia through MAR 42 is a complicated one. The various refs provide insight. MOD(N) Vol II 213-218 provides a copy of "PLENAPS", which was the most mature pre-war arrangement. See MOD(N) Vol II p for discussion of primary USN objections to PLENAPS.
[29]MOD(N) Vol I, 96-97.
[30] MOD(N) Vol II, 8. A-B-D leaders were not blind to this requirement, but were simply unable to agree upon and execute a strategy.
[31]CAPT Walter G. Winslow, The Fleet the Gods Forgot (Annapolis: Naval Institute Press 1982), 5, 7, 9. MOD(N) Vol I, 45. Winslow discusses the various working level plans and options in place/available at the end of 1941.
[32]MOD(N) Vol I, 41-42, 44-45. British aware of the potential for U.S. Pacific Fleet to fill the void in SW Pacific. MOD(N) Vol II, 9, USN sees problems with moving PACFLT units to Singapore, so its plans contained no provision for such a move. Collier, 101 and 103 presents the quandry and paradoxial location of the U.S. fleet: the British had the base, but not the fleet; the Americans had the fleet, but not the forward defensible base; and the large American fleet was located in the low vice high threat area.
[33]Collier, 178. Too late, at the end of 41, this became clear to the allies.
[34]MOD(N) Vol I, 96.
[35]Churchill, 97-98. Copies of correspondence between Churchill and Wavell, early FEB 42, which discuss in detail fighter protection for Singapore. See also 52-53.
[36]Collier, 180. MOD(N) Vol II 62-64. Discusses ABDA problem areas to included "theater", C2 and organization.
[37]Winslow, 6. Collier, 102, 103. MOD(N) Vol II, 5.
[38]Ibid, 5.
[39]Percival, 130-131, discusses success of small flotilla of Dutch subs in Gulf of Siam after start of hostilities.

[40]Winslow, 7. Brief background and summary of Phillips/Hart DEC 41 meeting. Percival, 130, conjectures on better uses for PRINCE OF WALES and REPULSE.
[41]Tsuji, 42, 49. Collier, 111. Tsuji discusses the "options" available, which were in fact variations of the same theme of landing on the Kra Isthmus. Collier discusses the inevitability of a Japanese landing at the Kra Isthmus.
[42]Collier, 136-140. Discusses British dilemma in the defense of Northern Malaya. See also Percival, 53-56.
[43]Percival, 52.
[44]MOD(N) Vol I, 27. Percival, 26.
[45]Percival, 110. Quantifies this as troops moving forward 24 hours prior to Japanese landing.
[46]Collier, 111, 138, 141-142. First page discusses time/space/force decisions needed to commit to either COA. Other pages discuss problems resulting from failure to commit to either COA in time. See also MOD(N) Vol II 46 for brief discussion.
[47]Percival, 135.
[48]Collier 143.
[49]Churchill 49.
[50]Ibid, 41-42, 47.
[51]Toland, 202.
[52]Collier, 137.
[53]Collier, 138. MOD(N) Vol II 46
[54]MOD(N) Vol II, 45. Collier, 138. Toland, 191. Percival, 106.
[55]Collier, 140. Percival, 108: his surprise that Brooke-Popham had not ordered Matador.
[56]Collier, 138. Percival, 108, credits Heath, and not himself, with prepositioning to execute Matador.
[57]Collier 141, delays and indecision!
[58]MOD(N) Vol II 46. Collier, 142-143. Percival, 114.
[59]Percival, 95.
[60]John Toland, 60-61.
[61]MOD(N) Vol II 59-60.
[62]Collier, 195-196.
[63]JMO Department, 23.
[64]MOD(N) Vol I, 15, 18.
[65]Ministry of Defense (Navy), War With Japan, Vol II and II (London: HMSO 1995), 7, 14, 20. Page 7 in particular discusses defense of Australia and New Zealand considered secondary only to defense of Great Britain itself.
[66]Collier, 107. MOD (N) Vol I, 12, 43, 46, 53, 98. The preferred number of capital ships for the Far East varied from time to time, and is discussed in these references.
[67]MOD(N) Vol II, 4, reason for delay in sending capital ships to Singapore.
[68]Collier,107.
[69]Collier, 108. MOD (N) Vol I, 7, 57. Percival, 95. MOD(N) Vol II, 4 presents existing position that, if war were not deterred, at least these ships would stop Japanese movement into Gulf of Siam.
[70]Churchill 37, 39, 55-56. Toland, 203.

[71]Tsuji 219. Churchill 48-50. Toland, 201.
[72]Churchill, 57-58. MOD(N) Vol I, 39. Curtin's memo to Churchill is found on 57-58.
[73]MOD(N) Vol I, 39. Australia and New Zealand retained a healthy skeptism regarding the depth of British commitments to their defense.
[74]Churchill, 36-59. Collier, 189. Churchill provides his position on the decision to continue to provide resourses for the defense of Singapore. Collier looks at Wavell's thoughts.
[75]JMO Department, 23.
[76]MOD(N) Vol II 47, 50.
[77]Ibid, 55.
[78]Ibid, 56.
[79]Ibid, 56.
[80]Ibid, 31. USN surface ships move from Philippines to Darwin/Surabaya, reflecting doubt in ability to hold the Malay barrier.
[81]Percival, 74. Discusses link between sea "supremacy" and susceptibility to assault from the sea.
[82]MOD(N) Vol II 51-52, Tsuji 153, 170, 178, 203, 213. Collier, 169. Churchill 44-47.
[83]Hayashi, 40, Percival, 25.
[84]Toland, 197.
[85]Tsuji 183-185.
[86]Ibid, 222.
[87]MOD(N) Vol II 49-50. Collier, 166.
[88]See Appendix A for details
[89]Tsuji, 152.
[90]See App A discussion of withdrawal from Gurun to the Perak River. See also Percival, 133-134, which discusses his decision to delay withdrawal from Jitra.
[91]Collier, 168, discusses opposing views of Percival and Heath. MOD(N) Vol II 51. Japanese capture of Penang airfield closes Malacca Strait to British convoys.
[92]Collier, 189.
[93]Toland, 199-201, 203, provide profile on Bennett and his frustrations. Percival, 34-35. Author did not hold Bennett in high regard.
[94]When Bennett had his day in the sun, he was given a force of mostly Indian brigades.
[95]See Appendix A for discussion of Heath's handling of Westforce at the Muar River.
[96]See Appendix A.
[97]Churchill 38.
[98]Tsuji 151. Churchill 41-42.
[99]Churchill, 94.
[100]JMO Department, 32.
[101]Churchill, 96.
[102]Percival, 102.
[103]Churchill, 42.
[104]Tsuji, 42.
[105]Collier, 171.
[106]MOD(N) Vol II 69, Tsuji, 186, 218, 219.
[107]Percival, 67.

[108]Ibid, 39. Even in his book, written years after the defeat, Percival failed to grasp the fact that his infantry based forces were at a disadvantage when dealing with the Japanese armor. Percival, 127, proper credit given to tanks.

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Appendix A

Land Force Operations[1]

The Japanese forces assembled at the port of Samah on the island of Hainan in the Tonkin Gulf, late in November of 1941. The initial force was composed of the 5th Division, and a detachment of the 18th Division, which had moved to Hainan from Canton and Shanghai. The 5th Division was specifically trained in amphibious operations. The headquarters directing the operation was the 25th Army, which traveled to Hainan from its base in Saigon.

The troops and their supplies embarked aboard 17 transports. Two battleships,11 cruisers, 24 destroyers, and 12 submarines provided close and distant support to the transports. They departed from Samah early on 4 December, and followed a circuitous route into the Gulf of Siam (see Map 2). Air cover was provided during the transit, from bases in Vietnam. On 6 December the task force was observed by British recon aircraft.

Late on the 7th the transports broke into three groups and moved towards Patani, Singora, and Kota Bharu. Landings at all three objective areas was accomplished early on 8 December. The only significant resistance was at Kota Bharu, where British aircraft attacked all three transports, sinking one and damaging the other two. This occurred after much of the force was landed, and did not have a long term impact on the operation. With daylight on 8 December aircraft from the 3rd Air Division, based in southern Indochina, initiated punishing raids on British airfields in northern Malaya.

British decisions the morning of 8 December were unfortunate. Stiff resistance was made against the assault on Kota Bharu, but no action was taken on "Matador", to counter possible assaults which might also be occurring in Thailand (although it was highly unlikely that the assault on Kota Bharu was being done in isolation). At 0915, several hours after the Japanese started landing in Thailand, this assault was confirmed by a recon aircraft. However, headquarters in Singapore sent no orders to the III Indian Corps in Northern Malaya until about 1300. The orders which came were to occupy frontier choke points at Jitra and "The Ledge" (the latter actually in Thailand), and to send a delaying force ahead from Jitra to slow down the Japanese advance. The 11th Indian Division was responsible for carrying out these orders (see area 1 on map 1, and map 3).

The battalion assigned to defensive positions at "The Ledge" was delayed by Thai authorities at the border, and met elements of three Japanese battalions, and light tanks, five miles short of "The Ledge". The British were thrown back with heavy losses.

Two brigades from the 11th Division, plus the 28th Indian brigade from III corps reserve, were tasked with holding Jitra; this was the bulk of the forces available for defense in Northern Malaya. The late decision to execute the defense at Jitra, vice Matador, caused them to arrive late at Jitra. Prepared positions were in fact incomplete, and

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[1]There is much material written on the operation ashore. Best sources are Tsjui and Percival, which provide first hand accounts from both sides; Collier (136-148; 160-175; 178-200) also provides a good account. Kirbey's work has excellent maps.

MG Murray-Lyon was forced to sacrifice what amounted to his reserve in delaying actions against the approaching Japanese 5th Division. His remaining troops were spread out across a wide front at Jitra, much of it jungle impassable for armor, rather than concentrated against the road itself. Contact was made on 11 December, and within a couple of hours Murray-Lyon was losing his stomach for defending Jitra. His first consideration was that the Jitra position was selected because it protected the large airbase at Alor Star. However, that field was already abandoned. His second concern was the failure to stop the Japanese at "The Ledge" would mean that enemy force would eventually be able to work its way to the road juncture at Kroh, which was in his rear. He asked twice on 12 December for permission to fallback to Gurun, approximately 20 miles south of Alor Star on the trunk road. This permission was finally granted, but the hasty withdrawal from Jitra was accompanied by heavy losses of men and equipment.

The Jitra force was disorganized, and fallback to Gurun was slow. The Japanese maintained momentum, renewing contact at Gurun on 14 December (see map 4). In just a few hours Murray-Lyon realized that he could not hold Gurun, and asked for permission to retreat another 80 miles to a position on the Perak River. He received piecemeal permission from Singapore, and so instead of a quick withdrawal to a good natural defensive position, he was forced to move, stop, and fight at intermediate positions. This wore hard on his troops.

The Japanese forces which had landed at Kota Bharu were having equal success. III Indian corps' other division, the 9th Indian, was composed of two brigades, the 8th, defending Kota Bharu, and the 22nd, defending Kuantan, well south along the east coast (see area 2 on map 1). Japanese forces were applying pressure on both these isolated forces, so it was decided to move the 8th south, and the 22nd west, to the vicinity of Kuala Lipis and Raub in central Malaya, where they could better support each other, and the 11th Indian Division. This move was completed the first week in January.

As the 11th Indian settled into the Perak River defensive positions (see area 3 on map 1), Murray-Lyon was replaced as division commander by BG Paris. The Perak defenses were actually two locations, at Kampar (15th and 28th brigades), and at the mouth of the river (12th brigade). These positions, along with the 9th Indian's positions at Kuala Lipis and Raub, were intended to seal off all the trunk lines. The Perak positions were attacked by the Japanese on 1 January, and held until the 3rd. The position at Kampar held against assaults down the trunk road, but the 12 brigade at the mouth of the river was outflanked by a Japanese amphibious operation. It was feared the 12th would break, allowing the Japanese to cut off the 15th and 28th from the south. So on 3 January the corps commander, LTG Heath, ordered the 15th 50 miles south of Kampar, to Tanjong Malim; and the 12th and 28th to an intermediate position at the town of Trolak, north of the Slim River.

The defense of the road at Trolak was a series of small minefields and roadblocks defended sequentially by the seven battalions of the 12th and 28th (see area 4 on map 1, and map 5). These forces had no anti tank weapons. At 0330 on 7 January, enemy armor attacked and penetrated the first defensive position. By 0930 they had penetrated 19 miles along the trunk road, gaining a full two miles beyond the Slim River bridge. The seven battalions of the two Indian brigades were reduced to 1200 men, one fifth of their full strength. Paris' men had been worn out by constant retreats, and heavy enemy air at-

tacks between 4 and 6 January. The "Slim River Disaster" was to weigh very heavily on everyone from Churchill on down, and bring into serious question the ability of the commonwealth ground forces to stop the Japanese.

On the day of the loss at Slim River, GEN Wavell was in Singapore enroute his new duties as ABDA commander. He determined that the 11th Indian Division was on the verge of collapse, and decided that the 8th Australian Division would relieve it in the role of confronting the Japanese, while the 11th was being reformed. The 8th, under MG Bennett, consisted of the 22nd and 27th brigades, and had seen little action while defending the southern end of the peninsula. The division itself was fresh. However, it was metamorphosized into "Westforce", under Bennett, which included the 27th Australian brigade, the 9th Indian Division's two brigades (8th and 22nd), and the newly arrived 45th Indian brigade. Bennett now had control of four brigades, but only one his own. This force was twice the size of that which he and his staff were used to running.

By 14 January, the remains of the 11th Indian Division withdrawn through the new Westforce. Bennett was directed to block all roads leading south by stopping the Japanese at two positions (see area 5 on map 1, and map 6). The inexperienced 45th Indian was placed at the mouth of the Muar River, to cover a feeder road and river system heading east northeast from the coast, a front of 24 miles. The 22nd Australian, and both brigades from the 9th Indian Division, covered much smaller areas inland on the trunk road system, principally at the towns of Gemas, Batu Anam, Segamat, and Labis. The only thing between Westforce and Singapore was the ragged remnants of the 11th Indian Division.

The Japanese simultaneously attacked both positions on 15 January, and by the evening of the 16th had overwhelmed the 45th Indian brigade. With his left collapsing, Bennett was forced to withdraw the three brigades on his right to more defensible positions further south. On 18 January, as the situation on the coast continued to deteriorate, headquarters in Singapore gave that position back to the still suffering Indian 11th Division, freeing Bennett to concentrate solely on the trunk road. However, the situation on both fronts continued to deteriorate, and on 21 January Percival reorganized his forces for one last defense of the peninsula, in Johore at the southern end.

The remaining brigades were assembled in the best possible order, and assigned to Eastforce on the east coast (22nd Australian), Westforce on the trunk roads in the center of the peninsula (22nd, 45th and 8th Indian, and 27 Australian) and the 11th Indian Division (15th, 12th, and 28th Indian, and 53rd British) on the west coast. With the exception of the 53rd British and 22nd Australian, all these brigades had earlier suffered moderate to severe losses. With these forces now operating so close to each other in the confines at the end of the peninsula, good coordination was necessary. Percival's headquarters did not provide this, and the Commonwealth forces were required to withdraw to Singapore Island, completing this on 31 January. The 22nd and 45th Indian brigades did not survive this withdrawal.

Commonwealth forces underwent some reorganization for the defense of Singapore itself (see map 7). The III Indian Corps was reorganized with the 11th Indian division (3 brigades) and the 18th British (2 brigades). The 8th Australian Division (3 brigades) reported directly to Percival. There were also 4 other individual garrison brigades, of lesser quality. Opposing them were the three Japanese divisions of the 25th Army,

divided into 11 regiments. Although the British force looked large, it had many disadvantages: the Japanese had complete control of the air; they easily ranged the commonwealth positions with their artillery from the mainland; and the commonwealth forces had an approximately 40 mile front to defend along the straits of Johore.

On 8 February the Japanese concentrated and moved the 5th and 18th Division against the coastline held by the 22nd Australian brigade. That brigade and the 44th Indian fell back, and along with the 27th Australian, established a defensive line along a chokepoint, the Jurong Line. As described in the body of this paper, this line held until coordination problems opened up an opportunity, which the Japanese exploited. Day by day the defensive line collapsed around the urban center, until Percival was forced to surrender.

Appendix B

Operational Lessons Learned

1. **Warfighting in the littorals requires a balanced force**. Commonwealth ground forces, built around a corps, a division, and other supporting forces, demanded more support than was available from weak naval and air components. Overwhelming Japanese superiority at sea and in the air helped tip the balance in conflicts between the ground forces.

2. **Commanders must understand the war they are fighting**. The British knew they needed a balanced force, to include a strong fleet and potent land based aviation. These not being available they compensated with a large land component centered around infantry, but **failed to tailor this force to the type of war dictated by the jungles and road network.** Maneuver ashore was primarily limited to roads. This channeled and exposed forces, making armor and aircraft essential tools. The Japanese had air superiority and all the tanks. To counter this the British concentrated infantry on these roads, exposing them to defeat after the defeat. Anti armor weapons, and sea and land mines could have been used to great advantage in slowing the Japanese advance, and tanks would have facilitated counter attacks. Organization and training of the land forces in operations below the battalion level could have slowed down the Japanese advance and disrupted their land LOC's. The three Commonwealth divisions, employed in small units, could have caused the operation to be measured in months vice weeks.

3. **Whoever controls the littoral has the potential to expand maneuver from the land to the sea**. This can decide between victory and defeat, as at Inchon; add to existing advantage, as it did in Malaya; or be squandered, as it was at Anzio.

4. **Intelligence and reconnaisance can be used to offset force deficiencies**. There is no indication that the British attempted to use their relations with the French to sort out what the Japanese were doing in Vietnam, both at the headquarters level with 25th Army planning, and as concerns the construction of airfields and the marshalling of aircraft. Such an effort could have been initiated and successfully pursued. This notwithstanding, there were many indicators as to the place and approximate time of the Japanese assault. The British reconnaisance effort did not aggressively pursue this. Acknowledging aircraft shortages, priority should have been given to early detection of Japanese movements, allowing for the initiation of "Matador" or the alternate plan. More air assets, the Dutch or American submarines, or even surface forces stationed as pickets, could have provided this alert.

5. **Control of the air is essential for operations at sea, or conventional operations on land**. This was evident in the loss of PRINCE OF WALES and REPULSE, the loss of the east and west littorals, the difficulties with resupply by sea into Singapore, Commonwealth brigade size maneuver on the peninsula, and the final defense of Singapore. In

each of these examples the Japanese advantages in the air contributed directly to the final British defeat.

6. **There are situations where sea based aviation is unnecessary for operational maneuver from the sea**. The British defensive force of approximately 150 aircraft was fully neutralized during the first few days by land based aviation flying from distant bases in the littoral. The essential second ingredient was the early establishment of expeditionary airfields.

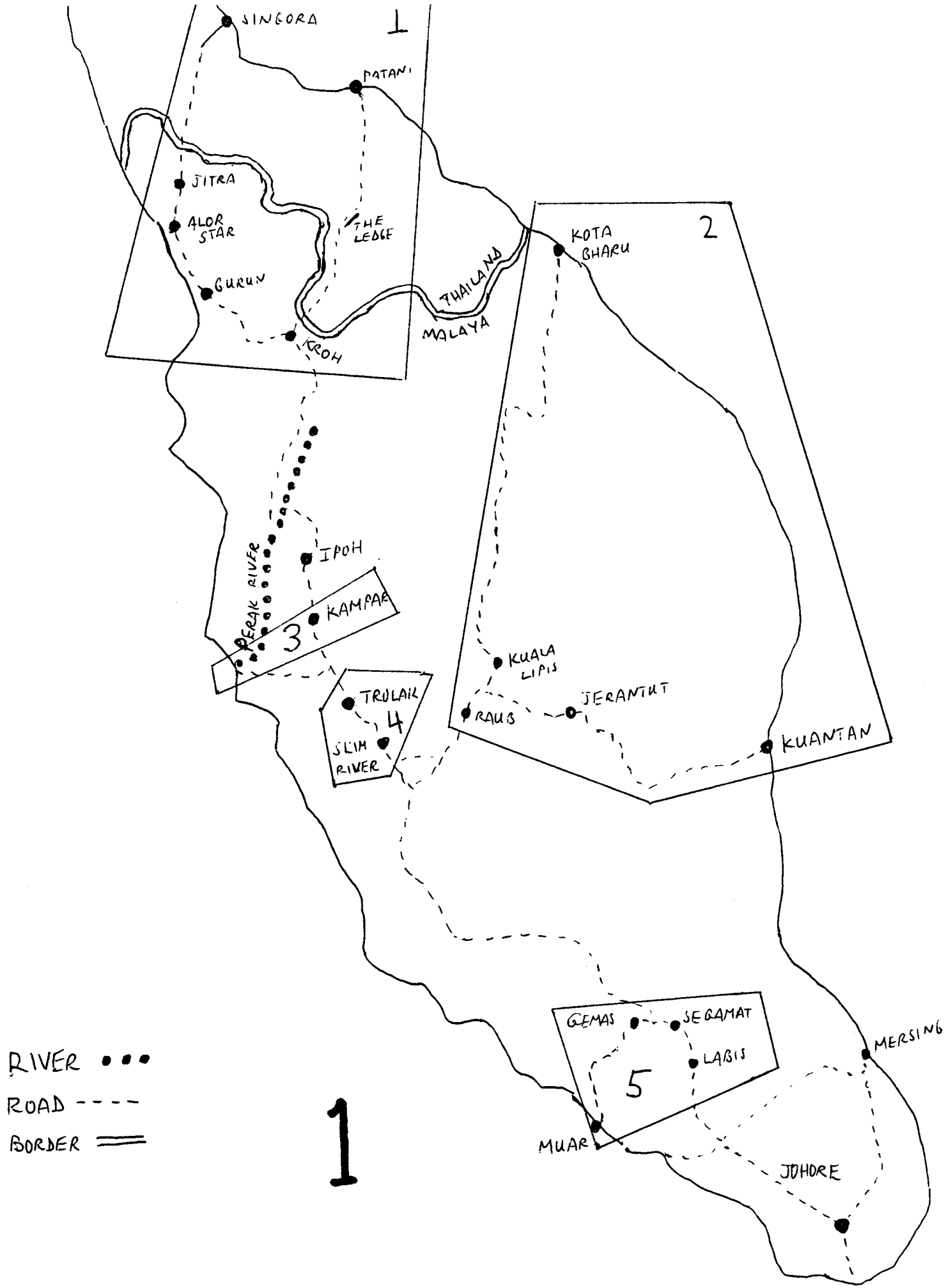
7. **A large civilian population is a liability**. The civilians greatly complicated Percival's final efforts in the defense of Singapore, and along with the loss of water, was his primary reason for surrendering when he still had such a large force. If Singapore was to be the place for the protracted defense, efforts should have been made early on to evacuate the bulk of the population. No easy task, but two months slipped by with no action taken. The large population was simply inconsistent with conducting this defense.

8. **Forces must be fully coordinated throughout the theater of war**. A common C2 structure must be in place to ensure the synergistic application of assets. This is especially true where multinational interests coincide. The Japanese were able to operate against uncoordinated allied forces, allowing them to concentrate their forces and defeat the allies piecemeal, where and when they wanted.

9. **History favors the attacker in amphibious assaults**. Even with those notorious for poor execution, such as Wake, Anzio and Wonsan, the attacker generally prevailed. And the rare failures, such as Gallipoli, remained arduous tasks for the defenders. Amphibious operations have failed when the attacker didn't land forces ashore, and this was invariably the result of an inability to control the sea approaches. Napoleon and Hitler abandoned plans for invading England because they couldn't deal with the Royal Navy. Likewise, Japanese designs on Port Moresby and Midway were thwarted by an inabilty to gain control of the sea from their enemy, while Guadalcanal was lost to the American victory in a protracted struggle for sea control. **The best defense against amphibious assaults is in the blue water.** This was the real key to defending Malaya and Singapore.

10. **The attacker does not need overwhelming superiority in numbers of ground forces.** Rules such as a 3:1 ratio of attacker to defender can be ignored by using offsets such as air and sea superiority, and a better balance of ground forces.

11. **Force allocations will be dictated by political as well as military considerations.** Wavell, responsible for defense of the entire theater, may have seen better uses for the British 18th Division than to be added to rapidly deteriorating Malaya theater of operations, but that choice was not his. Likewise, Phillips may have desired to wait for a more balanced Eastern Fleet before deploying it to Singapore; again, the decision was a political one.


SINGORA
1
PATANI
JITRA
ALOR STAR
THE LEDGE
GURUN
KROH
THAILAND
MALAYA
KOTA BHARU
2
IPOH
PERAK RIVER
3
KAMPAR
KUALA LIPIS
TRULAK
4
SLIM RIVER
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MERSING
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JOHORE
RIVER
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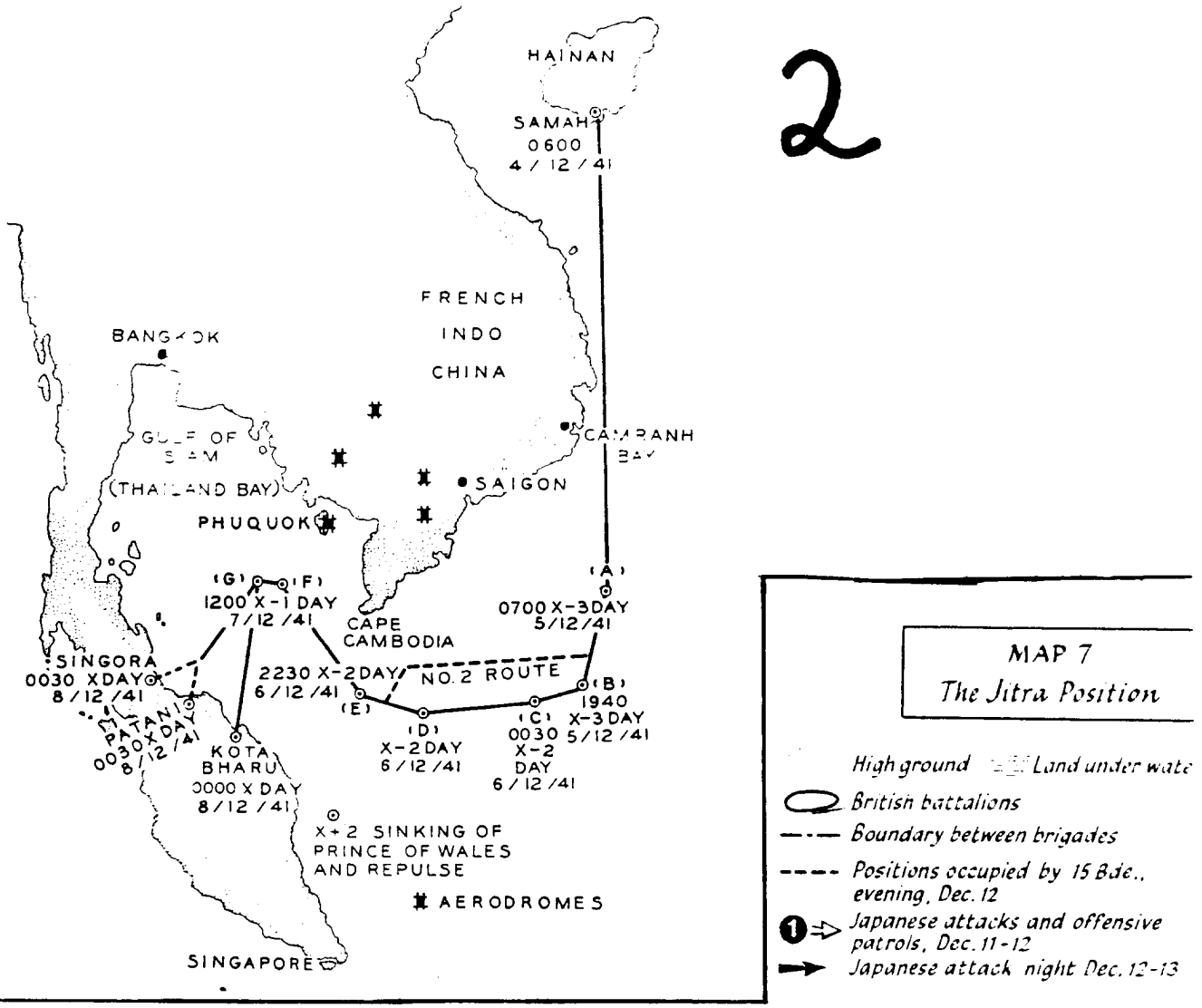
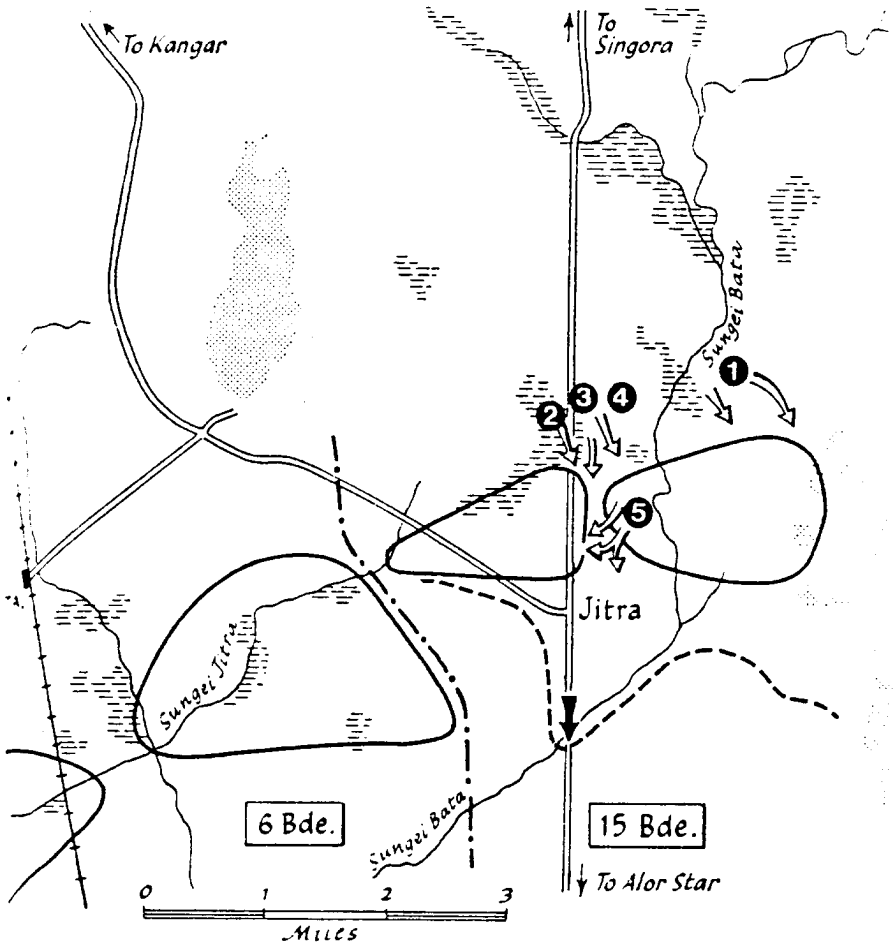


2

MAP 7
The Jitra Position

- *High ground* / *Land under wate*
- *British battalions*
- *Boundary between brigades*
- *Positions occupied by 15 Bde., evening, Dec. 12*
- ❶ ⇨ *Japanese attacks and offensive patrols, Dec. 11-12*
- ➡ *Japanese attack night Dec. 12-13*



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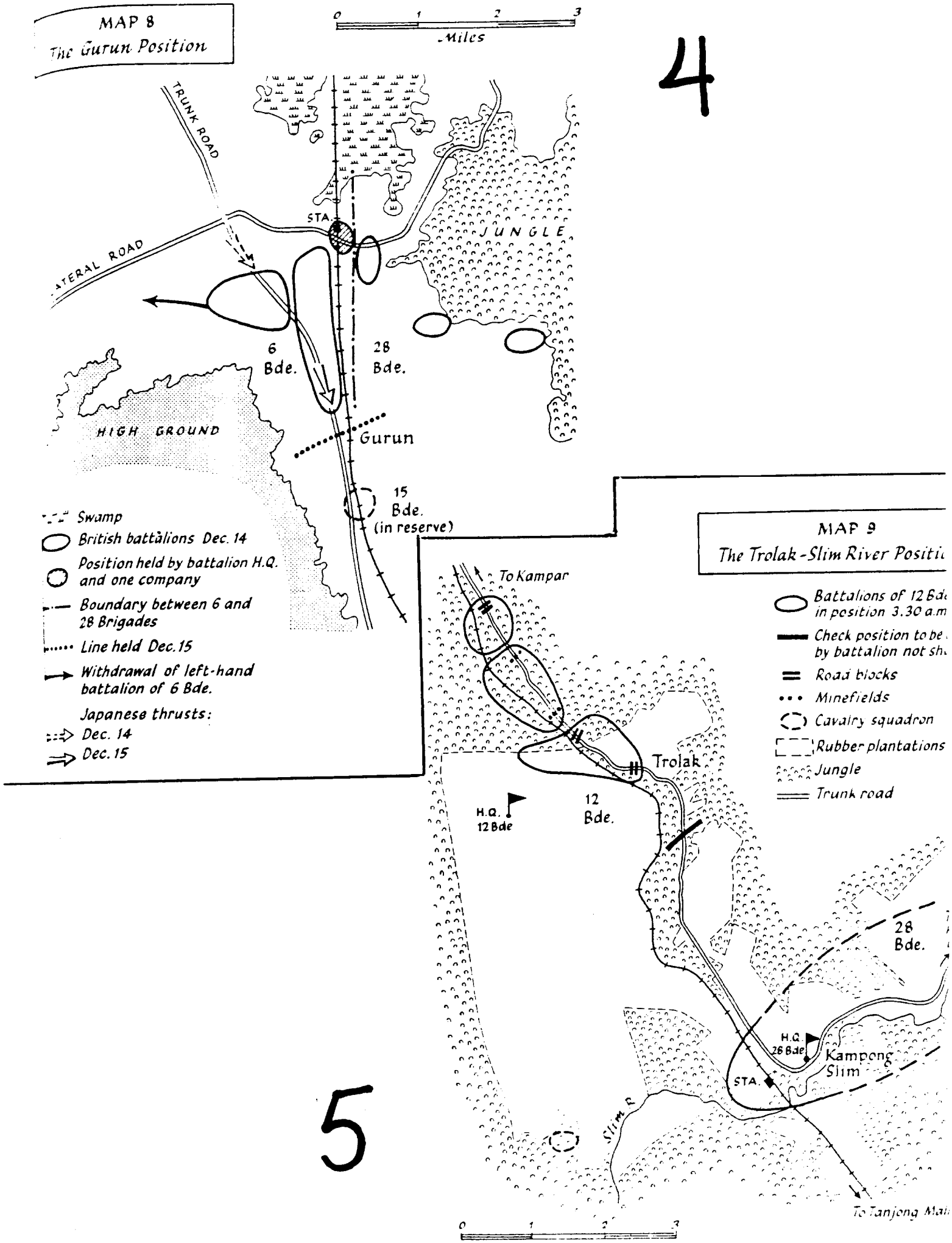
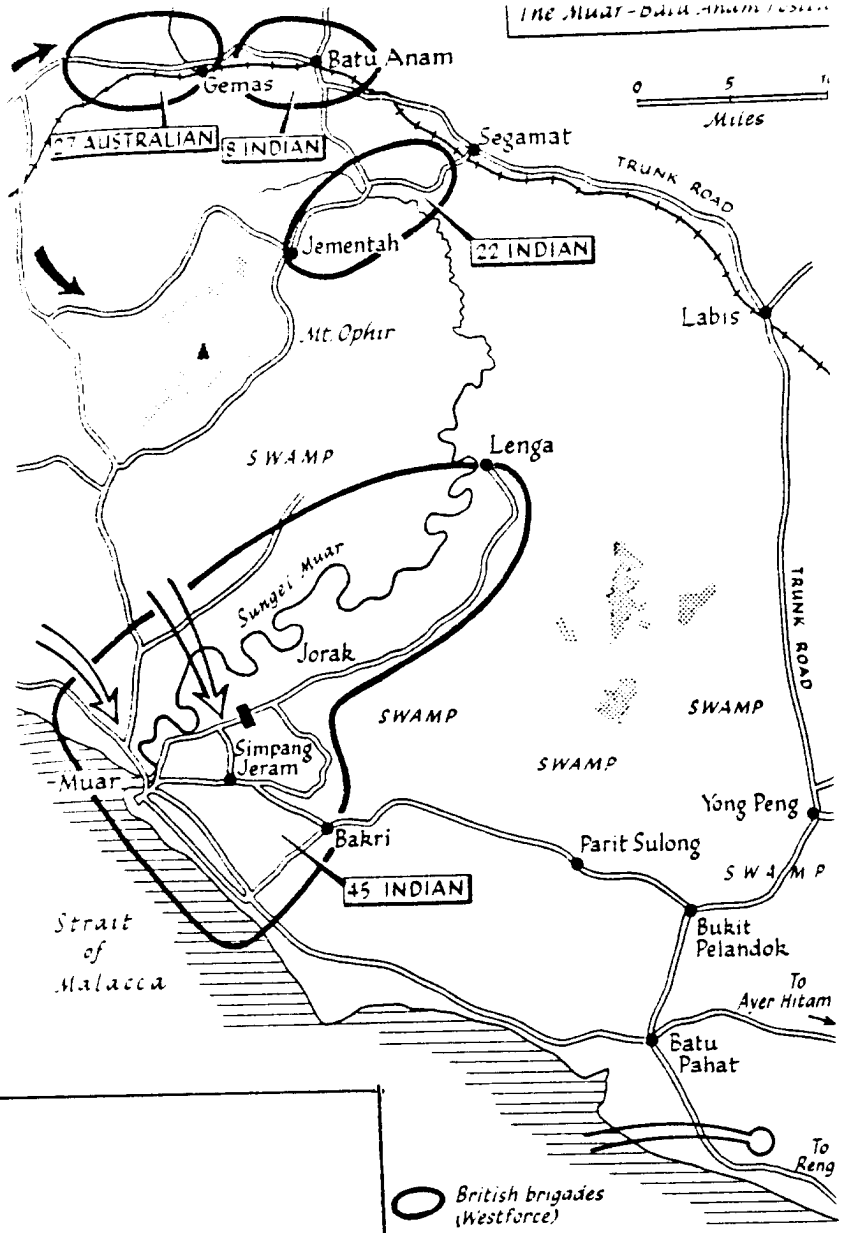
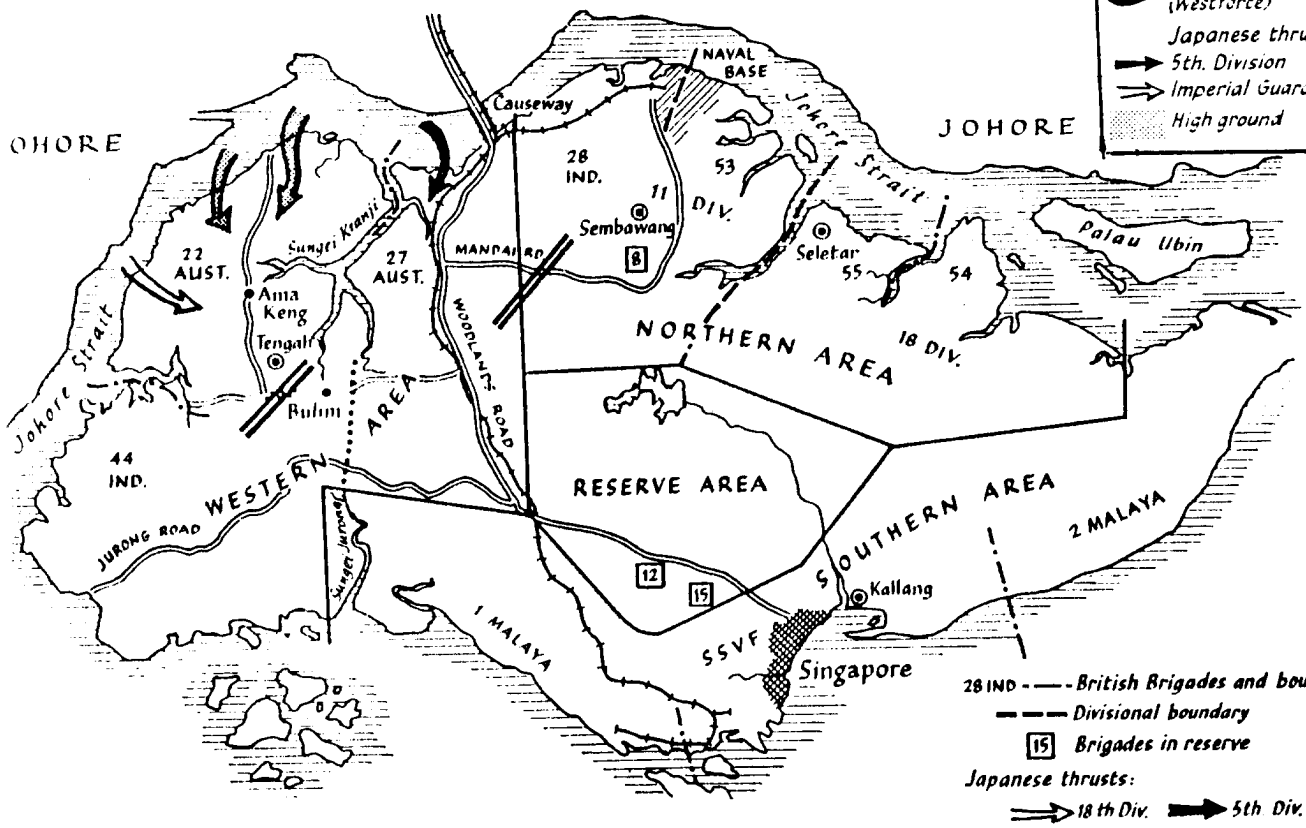

MAP 8
The Gurun Position
0 1 2 3
Miles
4
TRUNK ROAD
LATERAL ROAD
STA.
JUNGLE
6 Bde.
28 Bde.
HIGH GROUND
Gurun
15 Bde. (in reserve)
Swamp
British battalions Dec. 14
Position held by battalion H.Q. and one company
Boundary between 6 and 28 Brigades
Line held Dec. 15
Withdrawal of left-hand battalion of 6 Bde.
Japanese thrusts:
Dec. 14
Dec. 15
MAP 9
The Trolak-Slim River Positi
To Kampar
Battalions of 12 Bde in position 3.30 a.m
Check position to be by battalion not sh
Road blocks
Minefields
Cavalry squadron
Rubber plantations
Jungle
Trunk road
Trolak
H.Q. 12 Bde
12 Bde.
28 Bde.
H.Q. 28 Bde
Kampong Slim
STA.
SLIM R.
To Tanjong Mali
5
0 1 2 3

6


Batu Anam
Gemas
27 AUSTRALIAN
8 INDIAN
Segamat
TRUNK ROAD
Jementah
22 INDIAN
Labis
Mt. Ophir
SWAMP
Lenga
Sungei Muar
Jorak
SWAMP
SWAMP
SWAMP
Simpang Jeram
Muar
Yong Peng
Bakri
Parit Sulong
45 INDIAN
Strait of Malacca
Bukit Pelandok
To Ayer Hitam
Batu Pahat
To Reng
0 5
Miles
British brigades (Westforce)
Japanese thrusts:
5th. Division
Imperial Guards Division
High ground
Road block


JOHORE
JOHORE
Causeway
NAVAL BASE
Johore Strait
28 IND.
11 DIV.
53
Sembawang
8
MANDAI RD.
Seletar
55
54
Palau Ubin
22 AUST.
27 AUST.
Sungei Kranji
Ama Keng
Tengah
Bulim
Johore Strait
WOODLANDS ROAD
NORTHERN AREA
18 DIV.
WESTERN AREA
44 IND.
JURONG ROAD
Sungei Jurong
RESERVE AREA
SOUTHERN AREA
2 MALAYA
12
15
Kallang
1 MALAYA
SSVF
Singapore
28 IND. British Brigades and boundaries
Divisional boundary
15 Brigades in reserve
Japanese thrusts:
18 th Div.
5th Div.
Imperial Guards Div

7